

Chapter 8 Section 2

Linear Equations in Two Variables

What is a linear equation? (Chapter 8 Section 2)

An equation that makes a straight line when it is graphed.

Examples:

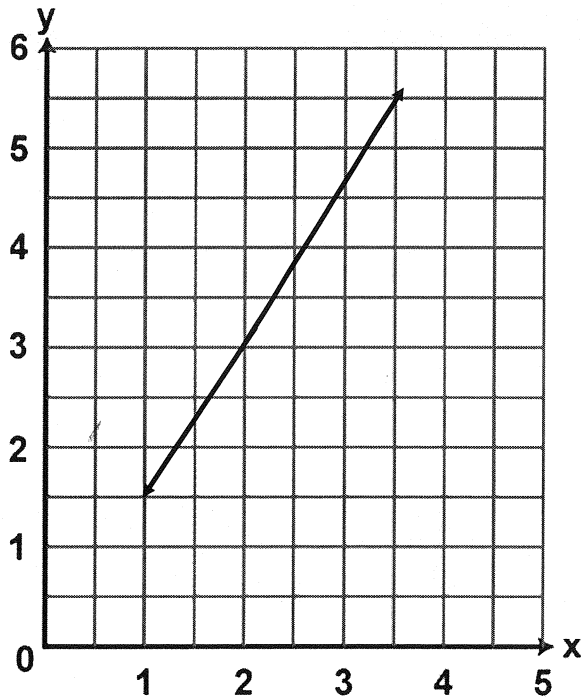
$$y = x + 8$$

$$y = -2x$$

$$3x + y = 20$$

$$y = 5$$

$$x = -3$$



Complete the table of values for $y = x + 2$

HINT ●

| x | y |
|---|---|
| 1 | 3 |
| 2 | 4 |
| 3 | 5 |

ANSWER

$$\text{if } x=1$$

$$y = x + 2$$
$$y = 1 + 2$$
$$y = 3$$

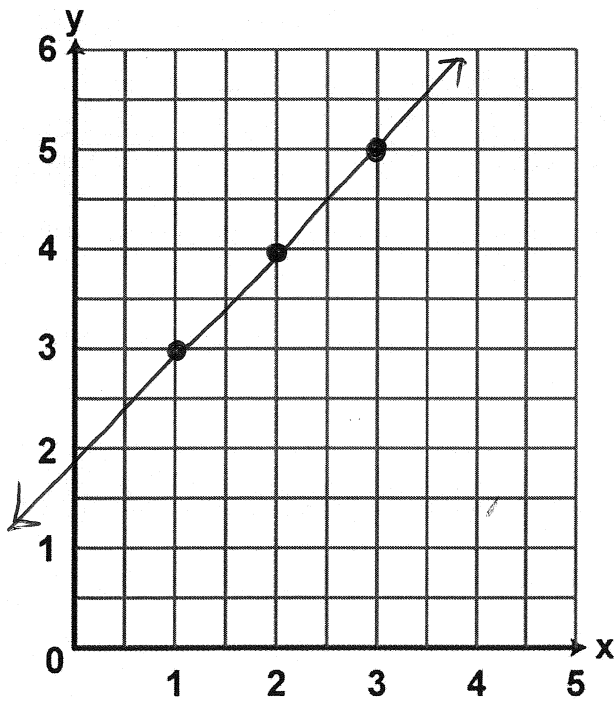
$$\text{if } x=2$$

$$y = x + 2$$
$$y = 2 + 2$$
$$y = 4$$

$$\text{if } x=3$$

$$y = x + 2$$
$$y = 3 + 2$$
$$y = 5$$

Graph $y = x + 2$



| x | y |
|---|---|
| 1 | 3 |
| 2 | 4 |
| 3 | 5 |

ANSWER

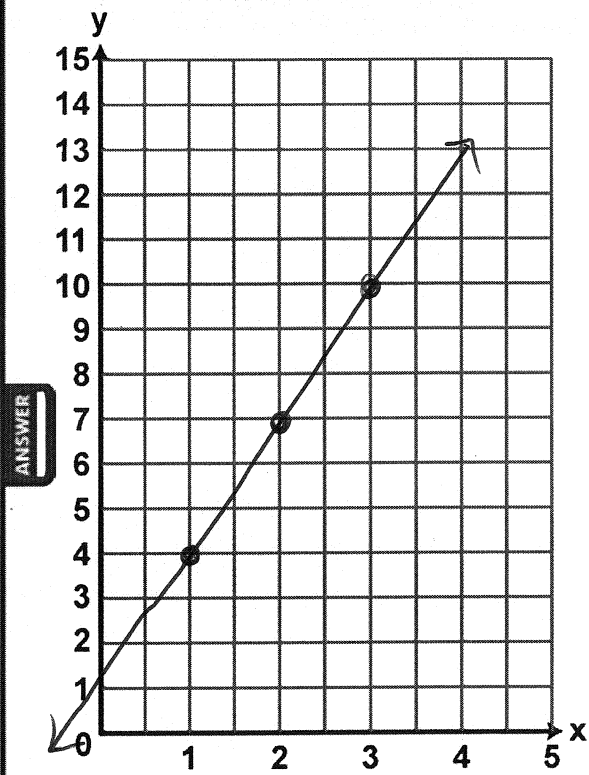
DRAG

HINT

CLONE

Graph $y = 3x + 1$

HINT ●



| x | y |
|---|----|
| 1 | 4 |
| 2 | 7 |
| 3 | 10 |

$$y = 3x + 1$$

CLONE

$$y = 3x + 1$$

if $x = 1$

$$y = 3 \cdot 1 + 1$$
$$3 + 1$$
$$4$$

if $x = 2$

$$y = 3 \cdot 2 + 1$$
$$6 + 1$$
$$7$$

if $x = 3$

$$y = 3 \cdot 3 + 1$$
$$9 + 1$$
$$10$$

Complete these tables

$$y = 5x$$

| x | y |
|---|----|
| 4 | 20 |
| 6 | 30 |
| 9 | 45 |

$$y = x + 5$$

| x | y |
|----|----|
| 1 | 6 |
| 3 | 8 |
| 10 | 15 |

$$y = 2x - 2$$

| x | y |
|---|----|
| 1 | 0 |
| 4 | 6 |
| 6 | 10 |

$$y = x - 1$$

| x | y |
|----|----|
| -2 | -3 |
| -1 | -2 |
| 0 | -1 |

Find the hidden x values

$$y = 5x$$

| x | y |
|---|----|
| 4 | 20 |
| 6 | 30 |
| 9 | 45 |
| ? | 60 |

$$x = 12$$

$$y = x + 5$$

| x | y |
|----|----|
| 1 | 6 |
| 3 | 8 |
| 10 | 15 |
| ? | 17 |

$$x = 12$$

$$y = 2x - 2$$

| x | y |
|---|----|
| 1 | 0 |
| 4 | 6 |
| 6 | 10 |
| ? | 18 |

$$x = 10$$

$$y = x - 1$$

| x | y |
|----|----|
| -2 | -3 |
| -1 | -2 |
| 0 | -1 |
| ? | 7 |

$$x = 8$$

Choose one of tables below and complete for $y = \frac{1}{3}x - 4$

HINT

| x | y |
|---|---|
| 0 | |
| 2 | |
| 4 | |

| x | y |
|---|----|
| 0 | -4 |
| 3 | -3 |
| 6 | -2 |

| x | y |
|----|---|
| -3 | |
| -2 | |
| -1 | |

ANSWER

ANSWER

ANSWER

DRAG

$$y = \frac{1}{3}x - 4 \quad \text{or} \quad y = \frac{x}{3} - 4$$

$$x = 0$$

$$y = \frac{0}{3} - 4$$

$$0 - 4$$

$$-4$$

$$x = 3$$

$$y = \frac{3}{3} - 4$$

$$1 - 4$$

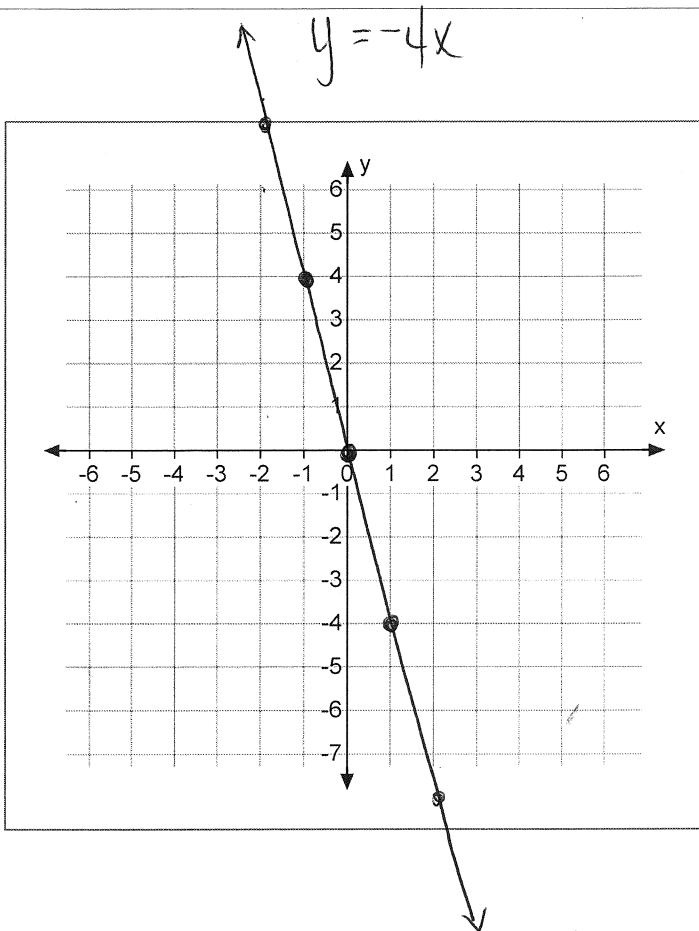
$$-3$$

$$x = 6$$

$$y = \frac{6}{3} - 4$$

$$2 - 4$$

$$-2$$



$$y = -4x$$

$$y = 2x + 4$$

$$y = x + 6$$

$$y = -4x$$

| x | y |
|-----|----|
| -2 | 8 |
| -1 | 4 |
| 0 | 0 |
| 1 | -4 |
| ● 2 | -8 |